

Tracks Summer 2001

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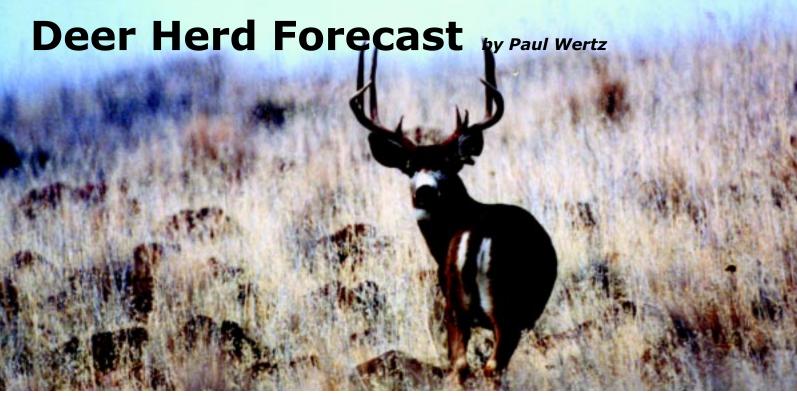


Photo by Steve Guill.

erhaps even Mother Nature can stand only so much whining. That's all she had heard over the previous several years from game wardens, wildlife biologists, deer hunters and *Tracks*. Whining about the hot, dry weather that seemed inevitable during deer seasons.

So, over much of California last fall the weather changed to stormy and the deer hunting did what it almost always does—it improved. The year 2000 statewide kill jumped 18 percent, and much higher than that in many locations. Now come the 2001 seasons.

In general, an improved buck kill is rarely followed by the same harvest level the following year. The reason is basic. Even a highly productive deer herd takes a couple of years to get male fawns up to legal antler age. And, of course, weather can be fickle.

As a starting point for the coming late summer and fall seasons, hunters might want to read the 2001 version of the DFG's "Environmental Document—Deer Hunting." It contains some fascinating facts, such as:

Bucks-only hunting removes

between 5 percent and 7 percent of a herd's total deer population each season, but between 30 percent and 80 percent of its bucks.

- •An average of 1.5 fawns per breeding-age doe is born within each deer herd each spring, temporarily doubling the population.
- •An estimated 50 percent of fawns born each year die within the first two months of life and another 25 percent succumb during the following winter.

What does all this have to do with prospects for the 2001 hunting seasons? Quite a bit, actually.

First let's look at 2000. California hunters bagged an estimated 39,062 deer in 2000, up from 33,800 in 1999, and 32,747 in 1998.

It's already been stated that under ordinary circumstances, a deer season with improved buck kill is almost certain to be followed by a deer season with a lower kill. Also, under ordinary circumstances, a large deer harvest is followed by an increased fawn survival as herds fill in the gaps left by the improved buck kill.

In turn, the higher fawn survival leads to a few more legal bucks in the herd two years later—given that fawns are born in about equal buck-to-doe ratios and that, on average, it will take two surviving fawns to replace each buck bagged in the previous season.

But, throughout the West, throughout California and especially along the western Sierra and the northern end of the state, varying degrees of deer habitat deterioration continue to make it difficult for herds to bounce back from periodic population declines.

To a great extent, society's conditioned aversion to fire is to blame. Fire, especially in California, kept conditions good for a wide variety of species, including deer, for centuries before fire fighting reached industry proportions. Today, it is prevented from keeping the great variety of forest plants in balance with each other.

Grazing on public lands, home building on deer ranges and forest practices that spray herbicides on sprouting brush plants also have contributed to making changes in wild lands that deer, if they had anything to say about it, would

(Continued)

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certainly oppose.

All that said, however, there is optimism from many DFG field personnel as the seasons for the state's 44 general "rifle" deer zones, 28 area-specific archery hunts and 36 additional hunts roll into view this year. The buck kill was up in many areas last year, but good hunting is predicted again this year because of the generous precipitation years leading up to last fall.

Following are additional details and prognostications, from north to south, for the 11 groups of California deer zones known as Deer Assessment Units (DAUs).

Northwestern California (DAU-1)

The six-zone "big green" complex comprises zones B1 through B6 at the very northwestern corner of the state. The species found here are almost exclusively black-tailed. The interior areas have migratory herds; the coastal edge supports primarily resident deer that move very little.

Hunters last year killed an estimated 11,365 bucks within the six zones, a 24 percent improvement over the 9,215 estimated to have been bagged in 1999. The tag quota for this year remains a liberal 55,500.

The six zones have a three-year-average deer population estimated at 160,800, about 23 percent of California's total deer. The DAU-1 kill of 11,365 last year represented about 28 percent of the estimated state kill.

As much as any deer habitat in the state, the forests and fields of the six B zones suffer from a lack of fire. Like the ceiling of a domed sports stadium, the canopy of thick, tall trees in the northwest is slowly, but surely closing and cutting off sunlight to the forest floor where brushy plants formerly fed deer.

Along coastal and near-coastal habitats of DAU-1, deer popula-

tions are faring well and continuing to provide a significant portion of the kill. Biologists estimate that the Mendocino portion of B1 has increased in the past two years.

Weather remains a large factor in hunter success, especially easterly of the coastal edge. Noticeable herd migrations occur out of the several wilderness areas of the six zones--the Trinity Alps being a prominent example--when early storms hit. Early season hunters have better success if they penetrate the higher elevations.

Eight percent of the DAU-1 kill last year occurred in zones B1, B2 and B6. The B6 season was reduced one week last year and has the same length this year. The "buck ratios" are in the range of 14 to 32 bucks per 100 does.

Cascade/North Sierra (DAU 4)

The north-central group comprises zones C1-C4 plus special late hunt G1 within zone C4. The area ranges from the center of the state at the Oregon line south along the east side of I-5 to Oroville and Willows. Deer are mixes of blacktails and Rocky Mountain mule deer, with black-tails dominating south of Mt. Shasta.

Hunters in 2000 killed an estimated 3,155 bucks, a 16 percent improvement over the 2,728 bagged in 1999. With a three-year-average population felt to be at about 42,000 deer, the herds make up around 6 percent of all California's deer.

Although the kill improved somewhat in 2000, DFG data from northern herd surveys shows numbers are slipping. For the first time since the four zones were formed, the tag quota will be lower—dropping from 12,000 to 11,500 for the four C zones and from 4,000 to 3,500 for G1.

The "no-fire, no-habitat" rule applicable to so many deer areas of California these days fits well for the C-zones complex. While winter ranges have tended to hold up relatively well, summer ranges feel

the squeeze of closing forest canopies. Rain finds its way to the forest floor, but sunlight doesn't, so shrubs don't grow.

Some isolated spots where fire has made minor openings in C4 and nearby D3 will demonstrate the value of fire to deer. But, they will be of value as tiny exemplars while remaining summer range habitat deteriorates and deteriorates.

As it is in the Bs, weather will be a big factor in the C-zone seasons. Herds are largely migratory and are set into motion by storms, especially if the storms have enough heft to lay down a sheet or two of snow at the upper elevations. In places like C4, when the migration starts the deer literally head downhill at a trot.

Last year's kill was, as usual, highest during the late-season G1 hunt within C4. At 939, it was up 39 percent. But, the regular season harvest for C4 was 602, off 13 percent.

Once labeled the largest migratory herd in California, the East Tehama herd of C4 is now estimated at about 22,100 deer. During its heydays of the 1950s-60s, it had about 100,000 deer.

Northeast California (DAU 2)

Scene of the original "X" designation, the northeastern corner of California's seven X zones are virtually all Rocky Mountain mule deer areas. The main exceptions are in eastern Siskiyou County's zone X1 and the western portion of X4, both supporting mixes of blacktails and "mulies."

Rifle and archery hunters last year bagged an estimated 1,787 bucks, a 28 percent improvement over the 1,399 tagged the year before. The seven-zone area has a three-year population average put at 23,210 deer, some 3 percent of all the state's deer.

This year's tag quotas were a mixture of ups and downs, with the total for the seven zones coming out 110 tags higher than

in 2000. Zones X1, X5a and X5b took cuts; the others were increased.

Tag quotas, based in part on hunter input, are set to meet either low, medium or high hunter success expectations. In the granddaddy quota zone, X5b, the quota is relatively low, but provides those lucky enough to draw a good chance of seeing a buck and, usually, a large one. In contrast, X1's larger supply of protective private land has led to a more liberal quota.

In both cases, the chances of drawing are, in a way, inversely proportional to the chances of getting a buck. Drawing odds this year were expected to range from one in two to one in nine.

Weather undoubtedly helped boost the kill last year, but probably stopped it from being even higher. Access in many areas was difficult due to the infamous "Modoc mud" that has been known to snare large bulldozers and hold them helpless for months.

Thus, a few extra bucks are loom-

ing throughout DAU-2 on the short term. On the long term, habitat conditions and deer numbers continue to decline as a grassland habitat that once supported vast numbers of pronghorn antelope and bison first was changed by livestock to favor shrubs for deer and now has entered an era favorable to none of the above.

Northeast Sierra/East Sierra (DAUs 3 & 6)

The 10 remaining X zones contain the rest of California's Rocky Mountain mule deer and, toward the south end, Inyo mule deer. Most are migratory animals, although development along the east slope Sierra in spots is raising the question of whether these habits are being changed.

Although not blessed with as much "weather" as hunters in many other parts of California last year, the archery and rifle hunters in zones X6a through X12 managed to bag an estimated 1,380 bucks, a 23 percent jump above the kill of 1999. Buck carryover from previously warm-weather hunts is believed to have been a big factor.

Thanks to generally good fawn production, buck carryover and buck-doe ratios, the tag quotas for the 10 zones this year totaled 5,080, up 80 tags from 2000.

The three-year-average population estimate for the 10 zones stands at 19,820 deer, about 3 percent of the total number of deer in the state. The kill of 1,380 represented about 3.5 percent of the state harvest.

Generally, the 10 "southern" X zones are faring a little better than the seven others in the northeastern corner of California. Both experienced sub-par precipitation during the past winter; both are looking at dry conditions going into the fall seasons; and, both have some measure of buck carryover—but the southern 10 seem to have the edge in carryover.

DFG deer managers feel hunters will find at least as many bucks in most of the 10 zones this year as they did last year. Exceptions are X9a and X9b, where deer declines are statistically noteworthy.

Continued on page 12



California hunter Jed Mcgee sent this photo along with his deer tag and the following letter:

"Dear Fish and Game:

"I thought my answer on the number of points question might make you wonder what was up so I included this picture as evidence that he really had zero points on the right.

"He had no externally visible testicles and upon skinning him, I found two about the size of a thumbnail under the skin, in the right vicinity, but had never dropped.

"Otherwise he was fat and in great shape ... the poor guy must have really been confused during the rut."



Scrub jay and mule deer. Photo by Steve Guill.

fter more than three decades observing the plight of north state deer herds, Dave Smith believes the time has come to recognize that all wildlife species—and their habitats—are necessary to sustain the complete forest Mother Nature so intricately designed.

A departure from the traditional Department of Fish and Game wildlife management stance? Not at all, says Smith, who at a ceremony in Sacramento earlier this year became the most recent recipient of the Shikar-Safari Club International's award as the California wildlife officer of the year.

Back at home in Redding, Smith is continuing what he hopes will be a successful contribution to a societal understanding that picking only favored, visible species such as deer, spotted owls or Pacific fishers and their apparent habitats for focused protection is a deadend street.

"It's taken me 30 years to return to this realization," said Smith, 58, well known among his peers as a relentless self-critic in search of answers to declining wildlife populations, including deer, spotted owls, fishers and a host of other species like neo-tropical birds.

"We in the wildlife world tend to gravitate to a species or a part of the ecosystem we like the best," he said.

"This is very dangerous. We develop working teams and research committees for certain species. But, who's taking care of the rest of them?" he asked.

The message is simple and, in Smith's reference to what he calls "Biology 1A," undeniable: the entire ecosystem must be allowed to function as it was designed to function. If over time one group of animals or plant life suffers, they all suffer.

Smith points to an often overlooked forest species, the porcupine, as a classic example.

"When was the last time you saw a porcupine in a forest environment?" he asks rhetorically. The implied answer is, "a long, long time."

The reason? Human activities such as fire suppression, anti-shrub timber management practices and grazing have combined to thicken forests to the point where very little sunlight reaches the forest floor to grow weeds and brushy plants. Porcupines eat weeds, buds

and shrubs in spring and summer and then woody products such as tree bark in the winter.

"And guess what," says Smith.
"The porcupine is one of the fisher's favorite foods."

"So, what do we do?" he knowingly asks. "We single out the fisher for protection and then, because it is seen in thick stands of timber, we decide we need heavily treed forests for fishers. What's the fisher supposed to eat?"

People who have spent much time around Smith know he has strong feelings that fire prevention, which inhibits plant variety in north state forests, is a major factor in the decline and fall of large numbers of wildlife species, including deer.

He likens a truly healthy forest to a block of Swiss cheese—with holes representing open areas supporting certain plants and wildlife and the solid sections representing mature tree stands. In his metaphor, the holes and solid areas regularly change places with the help of fire.

"Each part of the forest ecosystem is represented and each part gets its turn," said Smith.

Of some 250 to 300 species of wildlife that occupy California's natural wildlands, most would cease to exist without the bottom layer of an evolving forest's herbaceous plant community—the

startup grasses, weeds and tiny shrubs that sprout after a fire or man-caused disturbance such as logging, Smith points out.

"If the wildlife don't need a particular plant directly, they certainly need other wildlife species that do need that plant," Smith said.

"Although it is something of an oversimplification, the

most rudimentary rule of the forest is that every living thing traces its existence back to sunlight and that forest life falls into one of three categories—primary producers, primary consumers and secondary consumers."

Porcupine. Photo by Gary Nichols.

Examples of the three would be a weedy plant that, in turn, is eaten by a deer mouse that, in turn, is eaten by an owl. Like a multi-storied building that's expected to stand with its first few floors removed, the forest cannot keep its generous complement of wildlife without a continuously evolving set of habitats.

"Before modern man brought significant changes to our forests, these northern habitats were mosaic landscapes that included stands of large-diameter trees separated by areas of grasses,

shrubs and smaller trees," Smith said.

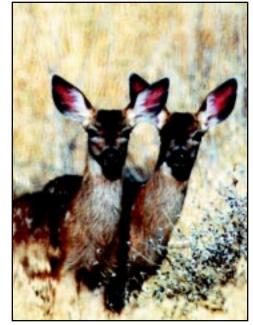
Studies have shown that fire was a frequent visitor to most forests, selectively creating fingers of open

area, bypassing stands of mature trees and always providing the perfect mix of habitats and animals, the biologist said.

"Many plant species, especially shrubs, absolutely need fire to reproduce. It was through historic fire patterns that the forests were regularly thinned and rearranged so that all the stages of forest life was present at all times," he said.

A combination of logging and normal fire re-

gimes in the late 1800s and early half of the 20th Century served to open many large blocks of north-



Deer fawns. Photo by Steve Guill.

Today's north state deer numbers, however, are well below the levels they should be, largely because fire suppression and such practices as post-logging herbicide use are turning the forests into "monotypic" seas of thick, sun-blocking trees whose habitats are inhospitable to many wildlife species, according to DFG experts.

Smith said because of fire suppression, forests have now

> reached a stage of fuel buildup that makes "friendly, creeping fires" that restore forest health less likely to occur and large, hot fires that open too much area at once more likely to occur. He



Pacific fisher. Photo by Paul Wertz.

ern forests to sunlight that, in turn, produced vast amounts of mid-stage forest shrubs. Deer, a shrub eater, flourished, reaching numbers likely unmatched before and not likely to be seen again, according to the conclusions of many DFG wildlife biologists. said logging might be of help in moving forests back toward a mosaic habitat that fire could maintain.

Paul Wertz is an information officer in the DFG's Northern California/North Coast Region.

Mountain Lions, Bighorn Sheep, Mule Deer & Humans: How Do They Fit Together?

f you spend much time in California's great out doors, there's a good chance you've been watched by a mountain lion or two.

Although they're elusive and solitary, mountain lions are common throughout California, from deserts to humid coast range forests. The only areas of the state where they are uncommon are the southeastern Mojave and Sonoran deserts, and the open Central Valley.

Mountain lion sightings receive lots of attention, but consider how many times the stealthy lion moves among us unseen.

Mountain lion researchers want to document just how often that occurs in areas with high populations of people and lions. The DFG has teamed up with the California Department of Parks and Recreation and the University of California, Davis, to monitor the movements of not only mountain lions, but also deer, bighorn sheep and humans.

The study seeks to understand the relationships between several species—including humans—rather than the behavior of just one particular species. Dubbed the "Southern California Ecosystem Health Project," the study will examine all of the pieces of the ecosystem puzzle, and how they fit

together. The
findings
should shed
some light on
the relationships
between deer,
lions, bighorn sheep
and people,
and lead to a
better understanding
of how we can all

coexist peacefully.

Two state parks in extrome Southern California

treme Southern California
will serve as the study
sites: Cuyamaca Rancho
State Park, including the
Cleveland National Forest;
and the greater Anza
Borrego Desert State

Park region, including adjacent public lands to the north and west of the park.

Cuyamaca
Rancho
State Park
was chosen for the
study because of
the unusually
high number of
lion/human interactions that have occurred
there over the past several years,
including a fatal attack on a hiker
in 1994.

Anza Borrego Desert State Park is home to the federally-endangered Peninsular bighorn sheep (see article on page 22). Predation by mountain lions has been identified as a major threat to the long-term recovery of Peninsular bighorn sheep populations.

Researchers have begun capturing deer, bighorn sheep and mountain lions and putting electronic monitoring collars on them. The collars will provide detailed information about seasonal movements, home ranges, and predator-prey relationships.

Information about human activity in the study areas will be gathered using cameras and motion sensors along trails, as well as campground registration forms and written surveys.

A better understanding of the relationships between lions, bighorn sheep, deer and humans will ultimately lead to recommendations the will help ensure human safety while managing wildlife.

During the course of the study, the DFG will continue with its policy of protecting humans and endangered bighorn sheep by removing mountain lions if necessary.

The study is expected to cost approximately \$200,000 each year. The DFG, California State Parks and the UC Davis Wildlife Health Center are providing funding for the first three years. Additional funding to continue the study will be sought from public and private sources.



Photo by Steve Guill.

A big part of a DFG biologist's job is answering questions from the public. Here, a DFG deer biologist answers a frequently-asked question about doe hunting.

Other states offer plenty of doe hunting opportunities. Why doesn't Califor-

Throughout the country, antlerless hunts, commonly referred to as "doe hunts," can provide recreational opportunities for deer hunters while modifying the composition of the deer herd.

An informal survey of deer hunters conducted during the "stakeholder meetings" (see article on page 10) showed that a majority of respondents support antlerless hunts and either-sex hunts for juniors, and more than 40 percent would hunt a doe themselves. Doe hunts stir emotional debate in many parts of the state, however, because some hunters oppose them. Thirty-seven of California's 58 counties have "veto authority" over doe hunts, and that authority is frequently exercised.

What's so controversial about antlerless and either-sex hunts? There is a widespread belief that killing a doe will mean fewer deer the following year because that doe won't contribute a fawn to the

population. In reality, the average California deer herd has a high birth rate but a very low fawn survival rate; 60 to 90 percent of fawns die their first year of life because of the poor habitat quality. In other words, there isn't enough food to go around.

Generally speaking, if 50 adult deer die, this makes room in the habitat for 50 fawns to survive. About half of the fawns will be bucks, half will be does. So if 50 bucks are harvested from one herd they will be replaced, on average, by only 25 bucks; the other 25 will be does. Buck-only hunts, year after year, result in ever-declining buck ratios.

If that same scenario is applied

using antlerless hunts, the result will be increasing buck ratios and overall buck numbers. States that consistently allow doe hunting report productive deer populations and high buck rates.

An analogy often used in the argument against doe hunts is that cattle ranchers who want to increase their herds don't remove their cows. Although this is true, ranchers have the ability to ensure their cattle have enough to eat. If forage conditions are poor, ranchers will frequently remove animals to keep the herd at an optimum size. Similarly, there is an optimum herd size for deer based on habitat condition. Unfortunately in California, many deer herds are above optimal levels.



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Hunters Take Stake in Deer Management

hen it comes to deer hunting opportunities in California, what do hunters want? More tags? Better drawing odds? Better hunting odds? A longer season?

The obvious answer, of course, is "all of the above." If deer managers and hunters had their way, deer populations would be plentiful enough to guarantee a quality hunt for everyone, every year.

Now, back to reality: Lots of hunters, and not enough quality hunting opportunities to satisfy them all.

"The key is to satisfy as many hunters as we can," says Sonke Mastrup, a

deer biologist who heads up the DFG's statewide deer program. "So we decided to get out there and start asking hunters the same questions we grapple with every year."

Armed with charts, diagrams and other visual aids, deer managers visited 23 communities from Yreka to El Centro between June and December of 2000. The public was invited to these "Deer Stakeholder Meetings" to listen and be heard on deer hunting topics ranging from drawing methods and tag allocations to hunting seasons and equipment.

"The public meetings are part of a two-pronged effort to assess deer

hunter opinion," said Mastrup, "This year we will follow up with a larger, scientifically-based random poll of

About 1,300 of California's estimated 150,000 deer hunters attended the meetings. They took home an informal survey to complete and return. Following is a summary of the 624 surveys that were filled out and returned. According to Mastrup, "Coupling this informal survey with a larger, randomized poll of hunters will ensure that the viewpoints of all deer hunters statewide are well represented."

Survey Responses:

Respondent **Demographics**

Gender

90.4 % Male: 7.5 % Female: Did Not Answer: 2.1%

About half of survey respondents were between 35 and 54. Their age distribution was as follows:

Under 18	2.2 %
18-24	1.6 %
25-34	10.9 %
35-44	22.1 %
45-54	28.0 %
55-64	21.8 %
65 or older	12.0 %

Ethnicity

Caucasian: 86.5 % 2.7 Hispanic: Native American/ Pacific Islander: 3.2 1.9 Other: African American: 0.2% Asian American: 0.3% 5.1% Did Not Answer:

Hunting During the Rut

Respondents were asked to indicate their support for hunting bucks during the "rut," or breeding season. This hunting strategy necessitates that either fewer tags be made available or that the season be shortened because bucks are more vulnerable to hunters during this period.

52.1 % Those who support it: 38.5 % Do not support it: 7.7 % Not sure/No Opinion: Did Not Answer: 1.8 %

This support for hunting during the rut drops to 40.7 percent if rut hunting results in fewer available tags, and to 39.3 percent if rut hunts result in shorter season length.

Two X Zone Deer per Year

Although current policy intends to limit hunters to one X zone deer a year, the DFG could allow hunters to take two X zone deer in one year: one through the drawing and the other through an area-specific archery tag. Survey respondents were asked their opinion on this: 84.1 percent said this should not be allowed.

Hunting Equipment

The use of various types of hunting equipment is the subject of frequent questions and comments from hunters. Respondents were asked their opinion on the use of:

Lighted Sights (currently not legal) 52.1% Do Not Support: Do Support: 25.6% Not Sure/No Opinion: 20.0%

Compound Bows (currently legal) Do Not Support: 9.9% Do Support: 54.0% Not Sure/No Opinion: 10.3% Did Not Answer: 25.8%

In-line Muzzleloaders (currently legal) Do Not Support: 35.9% Do Support: 43.6% Not Sure/No Opinion: 19.9%

Optical Sights for Muzzleloaders (currently not legal for muzzleloaderonly hunts)

55.0% Do Not Support: Do Support: 29.5% 13.9% Not Sure/No Opinion:



Deer Tag Drawing Method

Opinions about the drawing method were sharply divided:

Preference point System:	26.1 %
Draw-By-Choice:	23.4 %
Modified Preference Points:	18.3 %
Random Draw:	12.8%
Bonus Points:	12.0 %
No Opinion:	1.9 %
Did Not Answer:	5.9 %

Only 32.1 percent were willing to pay more for a deer tag to cover the cost of switching to a new drawing system.

Of the respondents, 84.3 percent had participated in the deer tag drawing within the last three years; 30.8 percent of respondents had received an X zone tag in the past three years, and 67.9 percent had not. There was no statistically significant correlation between having received an X zone tag in the past three years and which drawing method a hunter preferred.

Of the hunters preferring that the DFG use a preference point, modified preference point, or bonus point system, there was limited support for having a so-called "wait out" period, wherein hunters would be assured of getting an X zone tag if they wait more predictable and specified periods of time than the current drawing method provides.

Willing to wait out for:

One year: 43.4%
Three years: 38.6%
Five years: 17.8%
Seven years: 8.5%
More than seven years: 8.0%

Perception of DFG Service

In the interest of improving service to deer hunters, survey respondents were asked to share their perceptions of the DFG's performance in the following eight areas:

Ensuring health of deer populations:

Excellent: 20.5% Fair: 33.2% Poor: 35.6%

Protecting deer habitat:
Good/Excellent: 14.6
Fair: 33.5
Poor: 42.6

Providing deer hunting opportunities:

Good/Excellent: 31.8% Fair: 36.4% Poor: 25.2%

Attentiveness to deer hunters' needs:
Good/Excellent: 19.3%
Fair: 36.5%
Poor: 38.1%

Providing clear deer hunting regulations:

Good/Excellent: 42.6% Fair: 27.6% Poor: 24.7%

Providing deer hunting information Good/Excellent: 50% Fair: 29% Poor: 15.2%

Use of deer tag money to benefit deer Good/Excellent: 16.6% Fair: 25.8% Poor: 36.1%

Use of tag money to benefit deer hunters

Good/Excellent: 14.4% Fair: 24.7% Poor: 38.6%

Separate Quotas for Public and Private Land

In areas with very limited public lands, hunting pressure and hunter density on public lands can be very high. One possible strategy to reduce hunter pressure and improve the quality of the hunting experience on these limited public lands would be to set public and private land quotas separately. Separate quotas for public and private land:

Yes: 29.3% No: 55.3% Not Sure/No Opinion: 13.8%

Doe Hunts

Doe hunts are a deer population management strategy that is of interest to hunters. Survey respondents were asked if they support doe hunts for:

Juniors: Yes: 63.6% No: 31.6% Novices: Yes: 40.4% No: 54.2% Women: Yes: 43.6% No: 51.8% Self: Yes: 39.1% No: 54.3%

Methods of Take

It is apparent from hunter inquiries that deer hunters have very different and specific information and hunting interests, depending in part on which method of take they use most often. Therefore, the Department was interested in confirming which methods survey respondents use. Although around 40 percent of respondents chose not to answer the question, the remainder of respondents provided the following highlights:

59.6 percent said they usually use a rifle to hunt deer;

6.7 percent said they sometimes or usually use a shotgun to hunt deer (46.6 percent said they never use a shotgun to hunt deer);

7.2 percent said they sometimes or usually used a pistol to hunt deer (44.4 percent said they never use pistol to hunt deer);

20.7 percent said they usually use archery equipment to hunt deer (13.1 percent said they sometimes use archery equipment to hunt deer);

0.3 percent said they sometimes use a crossbow to hunt deer (55.9 percent never use a crossbow to hunt deer);

11.9 percent said they sometimes use a muzzleloader to hunt deer (38.6 percent said they never use a muzzleloader to hunt deer).

As an added note, the Round Valley deer herd of X9a/X9b provided a rude awakening for biologists during a late-winter study roundup. Does captured by the study team were described as "skin and bone," raising questions about their over-winter success and their feed.

Zones X6a and X6b continue to linger from the killing winter of 1992-93. Zone X7a may be heading into its third consecutive year of improved buck kill. X8, a zone hunted with success at elevations of 8,000 feet and above, has a good buck carryover. And, X10 is described as "doing well."

Hunter success last year ranged from the low 20 percent range to upwards of 52 percent in the 10zone complex. Inclement weather would help hunting in all zones.

North/South Central Coast (DAUs 8 & 9)

The largely residential, privateland herds of the central coast are dominated by coastal black-tailed deer. Zone A and its early archery and rifle seasons involve herds from Ft. Bragg to Ventura and two to three counties deep.

Hunters packing archery and rifle equipment last year bagged 12,091 deer, a 9 percent improvement over the estimated 1999 kill of 11,044. The zone's large quota of 65,000 tags remains unchanged.

The state's largest zone is estimated to have a three-year population average of 186,600 deer, some 27 percent of the state's total. Highly adept at hiding—rather than running—the coastal black-tails are known to "vanish into thin air one moment, then be coming out of the woodwork the next," one observer said.

Overall, as one DFG biologist noted, Zone A is "sitting pretty" this year. Deer numbers are good and buck carryover seems to be holding its own—minus last season's improved take. Animals also are said to be in good shape.

In the southern part of the zone, two years of low rainfall have increased concern about the possible impact on herds this year and next. Buck carryover seems to be good, but chances of summer losses—the equivalent of winter kills in a place like Modoc County—increase when food is scarce.

Pig and turkey hunters have reported seeing nice bucks in

places like Sonoma County. People also have reported a solid supply of other wildlife in the central and southern portions of the zone—namely ticks and rattlesnakes.

The northern third of Zone A is viewed as steady with buck carryover and deer numbers stable to increasing. Some timely fires last year could make bucks more visible this season and improve forage in the coming years.



Central/Southern Sierra (DAUs 5 & 7)

The eight west-slope Sierra zones of D3 through D10 are a mix of California and black-tailed mule deer and, especially on overlapping summer ranges, a few Rocky Mountain and Inyo mule deer.

Last year's archery and rifle kill is estimated to have been 6,826 deer, a 36 percent jump from the previous year's estimate of 5,006. The eight-zone tag quota total remains exactly the same as last year, at 62,700.

The three-year-average population estimate for the eight zones is 103,400 deer, about 15 percent of the state's total. The deer harvest total last year is estimated to have represented about 17 percent of the statewide kill.

From north to south, deer herds are described by field personnel as being stable to increasing, but well below population goals of most herd management plans.

In D3-D5, biologists say the herds are in stable condition, although below population goals. One biologist said the current condition of the zones "makes the 1980s the good old days."

Storms are imporant to hunter success, but in a mixed way. In some areas, for example, hunters pursuing bucks at higher elevations may do better than they will if storms push deer downhill and onto private, inaccessible lands. A few fires last year should make for some good spot hunting.

To the south, zones D6-D8 provide room for optimism. Buck and fawn ratios are very good in D8, but the terrain will still be a challenge for hunters. D7 had its highest kill in 10 years last year and could produce well again if storms help out. The end of D6 season could be better than the beginning, especially with storms.

D9 and D10 are holding their own. Fawn production and buck carryover are viewed as good this year. Throughout all eight zones, hunters should keep an ear tuned for possible fire restrictions if hot, dry weather prevails. Private land dominates in D10, so gaining permission to trespass will be a major factor in determining success.

South Coast/Desert (DAUs 10 & 11)

A combination of southern mule

deer and burro mule deer make up herds in the sparse deer areas of zones D11-D12, D14-D17 and D19 in deep southern California. Deer hunting is always a challenge in these arid zones.

However, as they did elsewhere, hunters enjoyed an improved success in the two south DAUs. They killed an estimated 1,439 bucks last year, a 34 percent improvement over the 1,076 they bagged in 1999.

Total tag numbers for the seven zones remain the same this year, at 15,950. The three-year average estimate for the deer population of the zones is 19,860, about 3 percent of the statewide deer population.

On the plus side for the "deep south" hunters is the past winter's generous precipitation—in some areas record rainfall. Forage production should be excellent this year, promising that deer will be in excellent shape. It also should translate into improved fawn health and fawn survival and that will mean a few more bucks in coming seasons.



Bob Gaynor
took this bull
elk during the
2000 Del Norte
Roosevelt Elk
Hunt. The
animal's
"green" score is
372 in the
Boone and
Crockett Club's
Records Book
for North
American Big
Game,

Wild Pig Hunt to Kick Off Restoration of Santa Cruz Island

by Erik Aschehoug

To help rid Santa Cruz Island of wild pigs, some lucky California hunters will be selected by lottery to participate in a wild pig hunt sponsored by the DFG, probably in spring 2002. The Nature Conservancy is allowing this hunt to take place before it launches a new program, with the National Park Service, aimed at eradicating the feral pigs that are doing so much harm to the island's natural habitats and native species.



Eastern aerial view of Santa Cruz Island. Photo courtesy of The Nature Conservancy.

anta Cruz Island is a magical and mysterious place. Formed at sea from volcanic uprising and subsequent deposits, the island features rolling grasslands, rugged mountains, deep canyons, and more than 70 miles of pristine ocean coastline. Santa Cruz is the largest of the Santa Barbara Channel Islands, which lie off the coast of southern California.

The Channel Islands' isolation from the mainland has resulted in such unique and complex ecosystems that they are often referred to as "The Galapagos of North America." Like the Galapagos Islands off the coast of Ecuador, California's Channel Islands are home to many plants and animals found nowhere else on earth. Each of the Channel islands has a different type of miniature fox.

Chumash Indians lived on Santa Cruz Island for over 7,000 years. They had a thriving culture and made frequent trips between neighboring islands and the mainland in *tomols*, their canoe-like boats. Early on, the Chumash were hunter-gatherers who relied on the ocean for food. Once the Spanish began to colonize the area in the mid-1700s, Chumash numbers fell precipitously because of diseases brought by the Europeans. Eventu-

ally, the Chumash were moved to the mainland.

The island's owners introduced cattle, sheep, and pigs. Both sheep and pigs became wild and reproduced in large numbers, resulting in very harmful impacts on the island's native species and ecosystems. Whole forested hill-sides eroded down to bedrock. Stream canyons filled with sediment. Unique island wildflowers survived only on cliff faces too steep for sheep.

The tiny island fox and ten unique wildflower species on the island are now state and/or federally listed as threatened or endangered.

In 1978 The Nature Conservancy, an international non-profit conservation group, secured protection for 90 percent of the island from Dr. Carey Stanton, the private owner of the land. With Dr. Stanton's death in 1987, The Nature Conservancy received full ownership and management of those lands. The remaining ten percent of the island was purchased by The National Park Service, a process which was completed in 1997. Now the island is entirely in conservation ownership. During the 1980s The Nature Conservancy began an ambitious

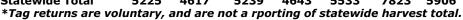
campaign to speed restoration by eradicating feral sheep and rounding up cattle for shipment to the mainland. Since the sheep were removed from the Conservancy's part of the island, native plants have rebounded with great success. In more recent years the National Park Service removed the last of the sheep from their eastend lands, leaving the entire island sheep-free. Last year The Nature Conservancy launched a new partnership with the National Park Service by donating 8,500 acres of the island's narrow waist. The gift not only increased the land available for public recreation to almost 25 percent of the island, but it also set the stage for integrated, island-wide conservation management. Chief among the tasks facing the Conservancy and the Park Service is eradicating wild pigs, a vital prerequisite to restoring the island.

According to The Nature Conservancy, wild pigs are an extremely disruptive force on the delicate, isolated ecosystem of Santa Cruz Island. With their ability to tear up the ground in search of food, the pigs are capable of "rototilling" acres of land in a single night. Their digging not only destroys plant communities and kills native plants, but it also prepares the

continued on page 17

Wild Pig Harvest as Reported from License Tags*

County	93/94	94/95	95/96	96/97	97/98	98/99	99/00
North Coast Region:	70	22	22	26	42	20	20
Humboldt	73	32	33	26	43	30	20
Modoc	0	1	0	0	0	3	0
Shasta	53	22	33	22	53	55 17	84
Siskiyou	9	8	12	12	21	17	8
Tehama	304 55	284 17	265 14	268 21	380 23	493 8	398 16
Trinity Region Totals	494	364	357	349	520	606	526
% of Statewide Harve		7.9	6.8	7.5	9.4	7.8	8.91
Central Sierra Region		0	0	0	4	0	0
Amador Butte	2 2	0 2	0 0	0 1	1 0	0 1	0 2
Calaveras	0	3	2	3	6	2	1
Colusa	63	34	76	73	151	117	64
El Dorado	1	0	0	0	0	0	0
Glenn	24	21	26	23	51	67	60
Nevada	11	5	7	4	17	9	7
Placer	1	0	2	6	2	3	Ó
Sacramento	0	0	1	0	0	1	Ö
San Joaquin	6	10	21	13	25	60	29
Solano	21	16	36	26	30	49	40
Sutter	59	24	17	31	64	59	45
Yolo	0	1	4	3	4	19	11
Yuba	7	3	1	1	4	1	0
Region Totals	197	119	193	184	355	388	259
% Statewide Harvest	3.8	2.6	3.7	4.0	6.4	4.9	4.38
Central Coast Region:							
Alameda	32	39	48	48	68	97	45
Contra Costa	8	5	8	6	9	21	15
Lake	83	56	43	33	42	47	28
Mendocino	652	371	339	291	299	286	164
Monterey	859	887	1011	935	1194	2063	1620
Napa	138	83	80	75	66	65	24
San Benito	263	289	394	371	359	717	461
San Luis Obispo	422	467	600	529	522	544	541
San Mateo	1	1	1	0	1	6	4
Santa Clara	604	816	751	541	609	863	440
Santa Cruz	59	66	61	48	53	39	48
Sonoma	851	394	458	377	379	402	306
Region Totals % Statewide Harvest	3972 76.0	3474 75.2	3794 72.4	3254 70.1	3601 65.1	5150 3 65.8	3696 62.58
G		c:					
San Joaquin Valley/So				161	270	2/1	200
Fresno Kern	102 15	100 20	160 44	161 89	270 143	241 319	208 487
Kings	8	6	6	3	5	319	27
Madera	14	14	33	30	30	21	36
Mariposa	30	40	53	61	72	51	54
Merced	43	36	41	33	50	138	101
Stanislaus	61	75	154	143	183	303	103
Tulare	68	58	71	104	90	97	64
Tuolumne	1	2	2	0	0	6	1
Region Totals	342	351	564	624	843		1180
% Statewide Harvest	6.5	7.6	10.8	13.4	15.2	15.1	18.30
South Coast Region:							
Los Angeles	42	43	54	28	12	89	46
San Diego	0	0	0	1	0	0	0
Santa Barbara	162	226	254	189	185	337	247
Ventura	4	6	7	1	5	7	12
Region Totals	208	275	315	219	202	433	305
% Statewide Harvest	3.9	5.9	6.0	4.7	3.7	5.5	5.16
Eastern Sierra/Inland		_					
Riverside	9	30	9	7	7	19	17
Riverside San Bernardino	9 2	30 2	1	1	3	5	2
Riverside San Bernardino Unknown	9 2 1	30 2 2	1 6	1 5	3 2	5 43	2 20
Riverside San Bernardino Unknown Region Totals	9 2 1 12	30 2 2 34	1 6 16	1 5 13	3 2 12	5 43 67	2 20 39
Riverside San Bernardino Unknown	9 2 1 12 est 0.2	30 2 2	1 6 16 0.3	1 5	3 2	5 43 67 0.9	2 20





Sow with piglets. Photo by Steve Guill.

For Wild Pigs, Head to the Coast

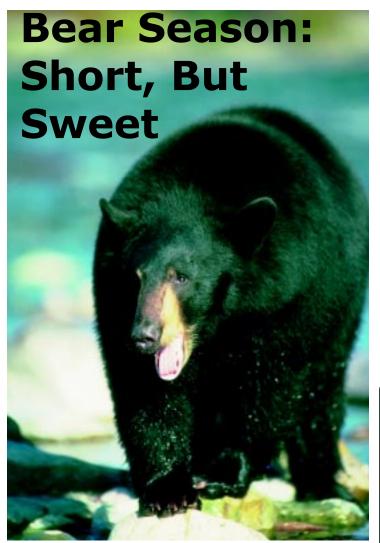
by Cris Langer

he 2000 wild pig hunting season extended from July 1, 1999 through June 30, 2000 with no daily possession or seasonal bag limit. Tag sales reported from the DFG's License and Revenue Branch totaled 206,557. Successful hunters voluntarily returned 5,906 wild pig license tags. The table at left is a compilation of data from returned tags.

Of the 5,906 pigs reported taken, 3,696—or 62.6 percent—were harvested from the Central Coast region. This region has consistently reported the highest number of pigs taken. Coming in second was the San Joaquin Valley/Southern Sierra region with 1,180 pigs taken.

Similar to years past, most pigs—90.9 percent—were taken on private lands and the remaining 8.1 percent were taken on public lands which include military installations such as Fort Hunter Liggett and Vandenberg Air Force Base.

Cris Langer is a scientific aide in the DFG Wild Pig Program who compiles and analyzes data from wild pig license tags.



by Cris Langner

he 2000 black bear hunting season closed 31 days early, (November 30, 2000) when the DFG received 1,500 report cards. A regulation change in 2000 eliminated the cap on bear tag sales which allowed for 18,212 bear tags to be sold, (18,004 resident and 208 non-resident). Non-resident tag sales decreased only moderately from 1999, continuing to comprise just over one percent of all tags sales. A total of 1,789 black bears were reported taken this year and overall hunter success was 9.8 percent, down from 1999.

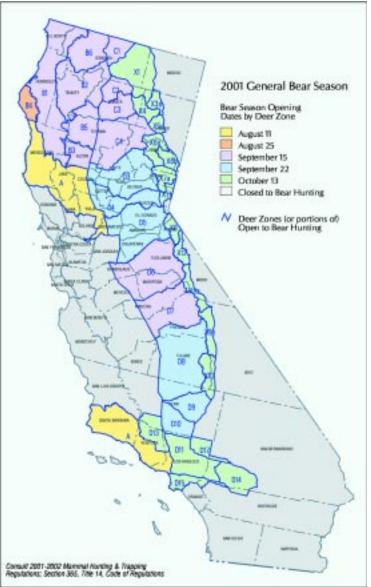
Once again, success rates for the different hunting methods varied slightly in 2000 compared to previous years. Hunters with trailing dogs took 907 bears, representing slightly more than half the kills. Hunters took 586 bears, or 33 percent of the statewide total,

For the latest harvest figures during black bear season, call: 916-653-GAME

while they were deer hunting, down slightly from last year. Archery hunters accounted for only 90 bears, down less than a percent from last year, while the number of hunters using guides increased from 5.9 percent to 6.8 percent, accounting for 122 bears killed.

Again in 2000 the general bear and deer season overlapped in the A, B, C, and D deer hunting zones while the X zones opened October 9th. During the general deer season hunters were limited to using one dog per hunter. Regulation changes in 2000 continue to be the primary factor affecting the season length, and changes in the proportions of bear take by hunting method.

Cris Langer is a scientific aide in the DFG Black Bear Program who compiles and analyzes data from bear license tags.



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2000 Black Bear Take

County North Coast Region:	Males	Females	Unknown	Total
Del Norte	24	8	0	32
Humboldt Lassen	80 13	50 6	0	130 19
Modoc	3	3	0	6
Shasta	105 97	74 82	0	179 179
Siskiyou Tehama	35	30	0	65
Trinity	104	85	0	189
Region Total % of Statewide Take	461 25.8%	338 19.0%	0 0.0%	799 44.7%
Sacramento Valley/Cen	itral Sierra	Region:		
Alpine Amador	10 0	9	0 0	19 0
Butte	18	20	0	38
Calaveras	11	8	0	19
Colusa El Dorado	0 41	0 19	0 1	0 61
Glenn	21	12	0	33
Nevada Placer	10 22	10 16	0 0	20 38
Plumas	22 28	18	2	48
Sierra	12	19	0	31
Yolo Yuba	0 10	0 7	0 0	0 17
Region Total	183	138	3	324
% of Statewide Take	10.2%	7.7%	0.2%	18.1%
Central Coast Region: Lake	4	4	0	8
Mendocino	57	36	0	93
San Luis Obispo Subtotal	0 61	0 40	0 0	0 101
% of Statewide Take	3.4%		0.0%	5.7%
San Joaquin Valley/Sou	ıthern Sier	ra Region:		
Fresno	63	31	0	94
Kern Madera	52 22	26 19	0 0	78 41
Mariposa	12	8	0	20
Stanislaus Tulare	4 66	2 67	0 0	6 133
Tuolumne	70	32	0	102
Region Total % of Statewide Take	289 16.2%	185 10.3%	0 0.0%	474 26.5%
	1012 /0	10.0 70	0.0 70	2013 70
South Coast Region: Los Angeles	8	5	0	13
Santa Barbara	11	3	0	14
Ventura Region Total	18 37	9 17	0 0	27 54
% of Statewide Take	2.1%		0.0%	3.0%
Eastern Sierra/Inland I	_	_	0	F
Inyo Mono	3 7	2 3	0 0	5 10
Riverside	3	1	0	4
San Bernardino Unknown	6 1	8 0	0 1	14 2
Region Total	20	14	1	35
% of Statewide Take	1.1%	0.8%	0.0%	2.0%
Statewide Totals	1,051	734	4 0.2%	1,789

58.8%

41.0%

0.2%

continued from page 8

ground for the accelerated invasion of weeds such as fennel, another serious threat to the island's natural communities.

The island has no ground squirrels, gophers, rabbits or rats, so originally, there was little to eat on the island itself. However, in the last decade, golden eagles have made their way from the mainland to the islands to feed on piglets. When the piglets grow too big to be easy prey, the golden eagles hunt the rare island fox. Because of predation by golden eagles, the fox population on Santa Cruz Island has dropped by 90 percent to perhaps as few as 130 animals.

To protect the foxes and ten endangered species of unique island plants, The Nature Conservancy and the National Park Service are moving into the final stages of planning for an intensive, professional wild pig eradication effort on Santa Cruz Island.

However, before the program begins, The Nature Conservancy has given the DFG permission to conduct a final public hunt on Santa Cruz Island as part of its Wild Pig Program. California hunters can help the cause of restoration and conservation while pursuing a popular game animal. About 100 lucky hunters will be chosen to participate through a DFGconducted random drawing similar to those used for pronghorn, elk, and bighorn sheep. Ten to fifteen hunters will be allowed on the island at a time. They will be paired up and sent to specified areas. Each hunter will be allowed about three days on the island. Although there is no bag limit, pig tags are required, and transportation logistics may dictate how many pigs each hunter will be able to take. The hunt is expected to occur in spring of 2002. Look for updates in upcoming issues of Tracks.

Erik Aschehoug is the Land Management Planner for The Nature Conservancy's Santa Cruz Island Preserve.

Statewide % of Take



Bruins Going Off the Air by Paul Wertz

ne by one, radio transmitter collars are coming off north state black bears, a signal the Department of Fish and Game's 10-year study of the California bruin is winding toward a conclusion.

DFG biologists said they are completing their annual visits to bear wintering dens near McCloud in southeastern Siskiyou County and the Klamath River's Happy Camp area in western Siskiyou County—this year to remove the transmitters as well as make the usual check for cubs.

Half of the last 28 collared bears—nearly all of them sows—will give up their collars this winter. The remaining half will be stripped of the transmitters next winter, according to Richard Callas, wild-life biologist leading the study.

When the in-depth study is concluded and the final report written, Callas said, the DFG expects to have a new and valuable storehouse of data on the state's only bear species, giving the agency information that will help it protect the black bear's northern habitats and guide management programs that include tightly controlled sport hunting.

"We are learning a great deal about these fascinating animals—a highly adaptable species that has evolved complex strategies for survival," said Callas.

Launched in 1992, the intense study has resulted in the summer captures of 198 bears that have been fitted with radio transmitter collars. In recent winters, biologists Callas and Melissa Crew, both working out of Montague, have been visiting dens of adult sows to learn, among other things, about the production and survival of cubs.

Cooperators include the U.S. Forest Service, a McCloud timber management firm, Forest Systems, and other private timberland owners whose forest habitats support black bears. Study teams have captured 89 female bears and 109 males, putting collars only on adult females and sub-adult animals.

The study has accumulated data on a variety of subjects, among the most important being the survival rates of sub-adult bears less than three years old and the relationship of a sow's age to its reproductive ability.

Fish and Game estimates the





Clockwise from top left: Researchers locate a hibernating bear by following the signal on her radio telemmetry collar; male cubs are fitted with expandable drop-off collars to track their survival rates; the study reveals a surprising fact: most bears hibernate high above the ground in tree cavities. DFG file photos.

population of California black bears at between 17,000 and 23,000.

The northern end of the state includes forest territory in western Siskiyou County that supports what may be the highest density of bears—the average number per square mile—of any area in the western United States.

Although a thorough report on the 10-year north state study is at least a couple of years away from completion, preliminary numbers and observations reveal some noteworthy information, such as:

•During one summer period, crews captured 40 different bears within

- a 15-square-mile area near the Klamath River.
- •In the Klamath area, male bears had an average age of 8 years and females, 9.4 years. In McCloud, males average 7.8 years old and females, 7.5 years.
- •For both areas, litter sizes ranged from 1.5 to 1.9 cubs per female. Adult female bears usually give birth once every other year.
- •The mortality rate for cubs in their first year of age is approximately 50 percent—possibly due in large part to predation by adult male bears and the relatively high bear numbers.

- •The oldest female bear captured is 22. At age 20, she gave birth to a cub and still had the youngster with her in their winter den a year later.
- •Sows in poor condition—reflective of forage conditions—tend to be unsuccessful in producing cubs.
- •The average home range size for sows in the Klamath study area appears to be 14,000 acres; for the McCloud area, 22,000 acres.
- •In the Klamath study territory, about 90 percent of bear dens are in trees and less than 10 percent in hollow logs. Nearly half of the tree dens have been above ground, some up to 100 feet high.
- •In the McCloud area, about 80 percent of the dens occur in hollow logs and around 8 percent in standing trees.

30 Tule Elk Captured During

uring an event that could be considered a high-tech rodeo, state and federal wildlife experts captured 30 tule elk Jan. 30 and 31, from San Luis National Wildlife Refuge and moved them to other areas of the state.

Instead of the traditional horse and lasso, however, this high-tech rodeo used a helicopter to pursue each elk, a net shot from a handheld netgun to subdue the fleeing animal, and ground crews to help safely restrain the animal. Each animal was brought to "base camp," where it was checked by a wildlife veterinarian and given injections by a medical processing crew, guided into a waiting stock trailer, and then

The elk were captured and moved to relieve over-

driven to the relocation site.

crowding at the wildlife refuge, located near the town of Los Banos in Merced County. "Over the past several years, the tule elk population at the San Luis National Wildlife Refuge has grown to about 70 animals, which exceeds the habitat capacity," said Jon Fischer, a California Department of Fish and Game wildlife biologist who heads up the state's elk program. "The management plan for the refuge calls for a maximum of 50 animals."

In addition to a helicopter pilot and "net-gunners" experienced in wildlife immobilization, the capture crews consisted of more than 50 wildlife biologists, veterinarians and other employees of the DFG and the U.S. Fish and Wildlife Service (USFWS), and volunteers from the Rocky Mountain Elk Foundation.

A total of 30 tule elk were captured during the two-day event. Thirteen elk were taken to south-

ern San Luis Obispo County; six elk were taken to the Payne Ranch area of Lake and Colusa counties; and 11 elk were released in southern Monterey County.

Photos by Donald W. Lange



"High-Tech Rodeo"

Tule elk represent one of history's greatest wildlife management success stories. Once teetering on the brink of extinction-by some accounts there were only two tule elk left in the 1870s-they have been restored to healthy numbers through decades of capture and

relocation operations. Today there are approximately 3,600 tule elk in 22 different herds statewide.

The challenge facing today's tule elk managers is finding areas of California that can accommodate the huge animals, which weigh up to 900 pounds and have demonstrated little regard for fences and other property boundaries. Wildlife managers use a combination of relocation and regulated hunting to control tule elk populations.

Photos, from far left: Ground crews restrain an elk after it is captured in a net fired from a net-gun;

An elk is airlifted to a flatbed truck for transport to "base camp";

Each animal receives a health checkup while its vital signs are monitored;

An elk is brought to the entrance of the transport trailer before the blindfold and leg hobbles are removed;

Once the animal gets to its feet, capture crews guide it into the trailer.



Bighorn Sheep: Endangered, Yet Hunted?

ver the past couple of years you've probably been hearing about the endangered Sierra Nevada bighorn sheep, a unique subspecies of bighorn found only in California and in danger of extinction. You may also have wondered how the DFG's Nelson bighorn sheep hunting program fits with efforts to save the endangered Sierra bighorn. To understand this, we need to review the facts about the evolution of bighorn sheep management in California.

Decades ago, when scientists were taking stock of California's bighorn sheep populations it was widely accepted that there were three distinct subspecies of bighorn sheep in this state: California bighorn (Ovis canadensis californiana), Nelson bighorn (Ovis canadensis nelsoni) and Peninsular bighorn (Ovis canadensis cremnobates).

California bighorn were once thought to be the same subspecies as the sheep that exist northward into the Canadian provinces. Scientists now know, through DNA analysis and physical measurements, that they are a unique subspecies that exist nowhere else in the world. They've come to be called Sierra bighorn sheep and are state- and federally-listed "endangered."

Nelson bighorn sheep populations are healthy and thriving; a very conservative hunting program allows between 10-14 sheep to be killed each year by hunters. Since 1987, when this hunting program began, \$1.8 million has been generated, serving as the primary funding source for the statewide efforts to restore and enhance bighorn sheep populations.

Peninsular bighorn, named after the Peninsular mountain ranges

where they live, were once thought to be a unique subspecies because they occurred in a unique geographic area, and early taxonomists thought they were physically different. Although scientists have since concluded, through DNA analysis and physical measurements, that Peninsular and Nelson should be combined into the same subspecies, the unique geographic name has stuck. When population declines put the Peninsular herds at risk, researchers sought protection for them under the state and federal endangered species acts, using the name "Peninsular bighorn," recognizing this unique regional population of animals.

Today, Peninsular and Nelson sheep are combined into the same subspecies, but one *population* is endangered.

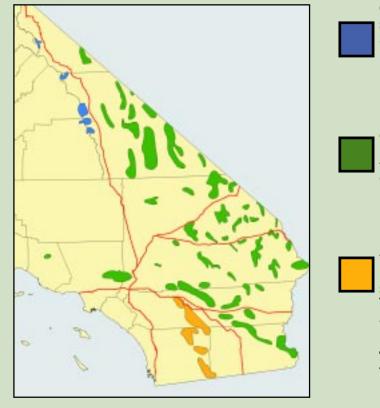
"From a conservation standpoint, it makes good sense," according to



Bighorn sheep. DFG file photo.

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California's Bighorn Sheep



California Bighorn Sheep: a unique subspecies found nowhere else in the world. State- and federally-listed "endangered." Population estimate: 120 animals.

Nelson Bighorn Sheep: includes six metapopulations, none of which are threatened or endangered. A conservative hunting program raises more than \$100,000 annually for management of all bighorn sheep statewide. Population estimate: 3,000 animals, not including Peninsular Metapopulation.

Peninsular Bighorn Sheep: once thought to be a unique subspecies, it is actually a metapopulation of Nelson bighorn sheep; state-listed "threatened" and federally-listed "endangered." Population estimate: 400 animals.

Statewide total bighorn sheep estimate: 3,520 animals.

---- Highway or Interstate Highway

Source: California Department of Fish and Game, 2000

Steve Torres, the DFG's bighorn sheep program coordinator. "Bighorn sheep in the Peninsular Ranges will likely never intermingle with other regional populations of Nelson bighorn sheep because they are separated by highways and other development projects (see map). Further, these populations remain unique in the way they have evolved to use a narrow ribbon of habitat from the desert valley bottom to only 4,000 feet in elevation. The Peninsular Ranges herds continue to need protection under the endangered species act, and we will manage them accordingly, " says Torres.

The researchers' approach to

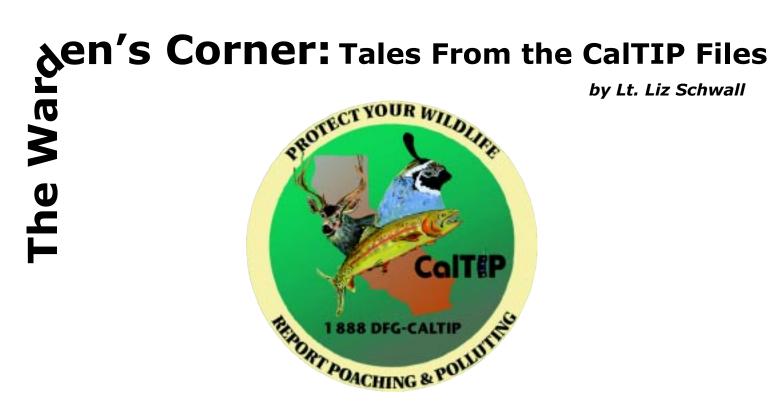
managing bighorn sheep reflects a change in the overall focus of today's wildlife conservation efforts; a shift away from looking at subspecies and toward what researchers call "metapopulations." A metapopulation is a self-contained, and self-sustaining, group of smaller, interconnected animal populations. As shown in the map, above, there are several metapopulations of bighorn sheep in California. Herds within each metapopulation interminale, and interbreed, but are unlikely to interact with other metapopulations.

"These metapopulations are, for

the most part, man-made," says Torres, "because they're basically islands of sheep separated by highways or other altered habitats. Our focus is on preventing further isolation by maintaining connectivity between herds within each metapopulation."

So, while researchers have taken steps to protect one metapopulation of Nelson bighorn sheep, the remaining Nelson metapopulations are healthy and thriving, and support a small hunting program that generates more than \$100,000 annually in hunting revenues that are used to manage *all* of California's bighorn sheep.

Tracks Big Game Sumi



This Teacher Gets An "F" . . .

An early morning phone call from the Lake County Sheriff's Office immediately captured the attention of local DFG Warden Lynette Reynolds. The Sheriff's Office told her that one of the deputies had found a vehicle hidden in the brush just off of Highway 29 near the town of Kelseyville. The deputy on scene told Reynolds that he believed the vehicle belonged to a poacher who was trespassing on private property.

Reynolds responded to the area and located the hidden vehicle, a white 4-wheel drive GMC pickup truck. After patiently waiting for four hours for the truck's owner to return, the warden's vigil paid off when the suspect, a Kelseyville resident and local teacher, returned to the truck. Warden Revnolds asked him what he had been doing. The man replied; "My truck broke down." When Reynolds asked the man to try starting the truck, it started without hesitation. Reynolds asked him where his hunting equipment was. The man stated that he had none. He went on to say that he had seen the "no

trespassing" signs so he knew that he could not hunt there. Even after extensive questioning, he stuck to his story.

Later that afternoon, Reynolds returned to the area with the landowner for a thorough search. Eventually, they discovered a tree stand overlooking the meadow, and a blood trail. Following the trail, they found a dead forked horn buck, partially covered with branches and grass. The deer had been killed by an arrow. Only the back straps and a portion of the hams had been removed. In the meadow where the deer was discovered, a pile of grain was found. It is illegal in California to place feed out for game animals in order to hunt them. A second blood trail was soon found, which led to another dead deer-also shot by an arrow. An analysis of the stomach contents revealed both deer had been feeding on grain.

A search warrant was quickly obtained for the suspect's residence. A Legacy bow was seized from the garage, as well as a number of Easton arrows. It was later confirmed that the broken arrows retrieved from the deer were also the Easton brand. Investigators also seized a maroon backpack containing the same type of grain found in the meadow, and a pair of Gortex hunting boots which matched a partial boot print at the kill site.

The suspect's freezer contained packages of meat labeled "loin" and "back straps." The meat was seized as evidence and then submitted to the DFG Forensics Lab for DNA analysis.

The suspect was charged with nine Fish & Game Code and Penal Code violations. He was convicted in the Lake County Court and ordered to pay almost \$3,700 in fines and restitution. He was placed on three years searchable probation during which time he may not hunt or be in the company of hunters. He may not possess any firearm or bow while on probation.

It Looked So Lifelike . . .

Last Fall, the caretaker of a rural Sacramento Valley property was so upset with poachers trespassing on the land to kill deer at night that he called Fish & Game Lt. Bill Mcfarland for help. The man was happy to hear that Lt. Mcfarland

Deer decoy looks like the real thing. Photo by Paul Wertz.

and his team of wardens were willing to set up a deer decoy on the property to try and catch the bad guys.

Unfortunately, even after several nights of surveillance, not one person had taken a shot at the dummy deer. Thinking that the decoy might not be in the best spot, the wardens moved the decoy to a slightly different location on the property.

The next day, the caretaker, himself an avid deer hunter, decided to try his luck. As he traversed his land, he was elated to see a legal buck standing not far from him. The man fired and was sure he hit the mark. Strangely, the deer



remained standing. The bemused hunter was more than a little embarrassed to discover that he had in fact shot the relocated decoy.

The shot was indeed a good one and the resulting wound proved

"fatal." The decoy was subsequently removed from the property and then sent to the repair shop for a complete overhaul.

Lt. Liz Schwall is the statewide coordinator of the DFG's CalTIP program.



The Final Reward by Chef Kirk Williams, CEC, CCE



Zuni elk and hominy stew. Photo by Robert Waldron.



Kirk Williams is co-founder and CEO of **Golden State Culinary Institute** 333 Sunrise Ave., Suite 400 Roseville, CA 95661 (916) 797-3663 www.gsculinary.com chefkirk@pacbell.net

Wild Boar Spare Ribs with Chipotle, Raspberry and Peanut Glaze

2	sides	Wild Boar or Pork Spare Ribs,
		trimmed
3	ea.	Oranges, cut ½
3	ea.	Bay Leaves
1	tbsp.	Cumin
2	tbsp.	Salt

Bring a large pot of water (big enough to accommodate the ribs) to a boil. Squeeze in the oranges and add the rind halves with the bay leaf cumin and salt. Simmer on a low heat for 45 minutes. Place ribs on a hot BBQ to grill or a foil lined sheet pan for baking in a 400-degree oven. Once lightly browned on both sides brush with sauce and continue cooking several more minutes. Serve with remaining sauce

Zuni Elk and Hominy Stew

3 ½	lbs.	Elk, Bear or Lamb Stew Meat
1/4	cup	Corn Oil
1	cup	Onion, large diced
2	tbsp.	Garlic, minced
1	ea.	Jalapeno Chile, minced
1	lb.	Fresh Poblano Chiles, large diced
1/4	cup	Masa Harina (tortilla flour)
1 1/2	qts.	Chicken Broth
1	lbs.	Tomatillos, husked, large diced
6	ea.	Juniper Berries
2	ea.	Bay Leaves
2	cans	Hominy, drained
2	tbsp.	Salt
2	tsp.	Pepper, ground

Heat a large pot over high heat until very hot. Add the oil and meat. Sear on all sides until well browned. Remove the meat and add the onion, garlic, jalapeno and poblano chilies. Sauté for 1 minute. Lower the heat and add the tortilla flour. Stir in and cook for several minutes. While stirring, add the broth and bring to a simmer. Add the seared meat and tomatillos. Wrap the juniper berries and bay leaf in cheesecloth or a coffee filter and tie with a string. Add to the stew. Cover with a lid and allow simmering gently until the meat is fork tender, approximately 1½ hours. Remove the bay leaf and juniper sachet. Stir in the hominy and season with salt and pepper. Serve over jalapeno rice or grits. Serves 8.

Sauce

Chili Sauco

4	02.	Criii Sauce
2	tbsp.	Brown Sugar
1/4	tsp.	Mustard Powder
2	tbsp.	Cider Vinegar
1/4	cup	Chunky Peanut Butter
1/3	cup	Raspberry Preserves
1	tbsp.	Cilantro, minced
1/4	cup	Onion, small diced
1	tsp.	Oil
2	tsp.	Soy Sauce
1	tsp.	Sesame Oil
1	cup	Chicken Broth
4	ea.	Canned Chipotle Chiles, minced
2	OZ.	Tomato Puree

Heat a saucepan and sauté the onions until translucent. Add the soy, sesame oil, chicken broth, chipotle, tomato puree, chili sauce, brown sugar, mustard powder, vinegar and peanut butter. Bring to a simmer while stirring constantly. Add the raspberry preserves and cilantro and stir in. Remove from the heat and reserve warm for use. Serves 4-6.

Pro Tips

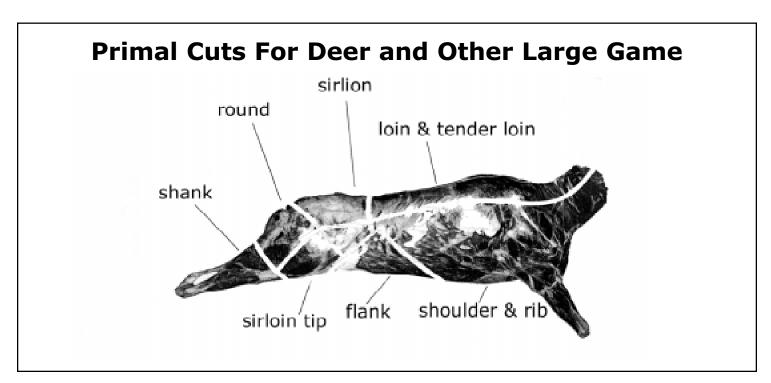
Tasty Tips

- Game such as elk, venison and boar are typically more tender and less gamey tasting when still young. Trophy or older game should be properly aged or tenderized by freezing or marinating prior to cooking.
- The natural agent papain, a proteolytic (protein-digesting) enzyme is found in papaya seeds and used in most meat tenderizers. Try mashing some into papaya flesh and adding it to your marinade. The seeds are peppery and add both flavor and marinating properties to your dish.
- When portioning larger cuts of meat into smaller slices or steaks, always cut across the grain of the meat. This shortens the length of the muscle fibers, making them easier to chew and enjoy.



Did You Know?

- Trichinella spiralis, is the slender nematode round worm often associated with pig, boar and bear meats. Though reported cases of this flesheating parasite have reached an all time low (1991-1996, an annual average of 38 cases per year were reported) in the United States, there is still cause for good handling practices. All pork products should be cooked to a minimal internal temperature of 145 degrees at their thickest point to ensure safe consumption.
- Organ meats such as liver, brains, kidneys and hearts do not benefit from aging and should be eaten as fresh as possible. Freeze quickly if necessary and make them a first choice for consumption over other meat cuts that benefit from the freezer aging process.
- Sheep and goat contain a layer of collagen between the skin and flesh called "fell". It's elastic and skin-like in appearance is easy to spot and should be removed. If cooked, it is nearly impossible to chew and has a very strong taste. Ultimately, it will reduce the palatability of your dish. Meat processed by a butcher will likely still need to have the fell peeled away.



DFG Announces

When Are Hunting & Fishing Regulations Available?

Every year the California Fish and Game Commission prints seven regulation booklets covering fishing, hunting and wildlife area regulations. The booklets go into production as soon as the regulations are approved.

At right is a list of scheduled publication dates for each booklet, as well as the "early bird flyer" which is a summary of upland game regulations. The "early bird flyer" is intended to fill the gap between the time the resident/ upland game regulations are approved and the release of the 24-page booklet.

Sometimes the ocean salmon book may be held and combined with the inland salmon book if there are very few changes.

Regulation PublicationShedule:

Sport Fishing: Jan. 15
Ocean Salmon May 14
Mammals May 14
Inland Salmon June 18
Early Bird Flyer Aug. 13
Resident/Upland Game Sept. 11
State/Federal Areas Sept. 11
Waterfowl Oct. 1

Hunter Education

For a list of hunter education classes in your area, call one of the telephone numbers listed below. A list of certified hunter education classes is also available on the DFG home page, at: http://www.dfg.ca.gov/huntered

Northern California/ North Coast: (530) 225-2003

Sacramento Valley/ Central Sierra: (916) 351-0833

Central Coast: (707) 944-5576

San Joaquin Valley/ Southern Sierra: (209) 243-4027

Southern California/ Eastern Sierra: (562) 590-5670

Big Game Tag Auctions Raise \$346,200 For Wildlife

Each year the DFG selects organizations to sell big game fund-raising tags.

The ultimate beneficiaries from the sale of fund-raising tags are the wildlife, because the proceeds support surveys and investigations needed for the sound management of bighorn sheep, elk, deer and pronghorn antelope.

This year, two bighorn sheep "open zone" tags were offered; they are valid in all bighorn sheep hunting zones.

An Open Zone deer tag is valid for all zones as well as additional deer hunts and area-specific archery hunts within specified season dates and methods of take.

A Golden Opportunity deer tag is valid statewide from mid-July, 2001

Organization Type of Tag(s) Sale Price

Mule Deer Foundation, Sacramento	Open Zone Deer	\$4,000
Safari Club International, San Francisco	Open Zone Deer	3,700
Rocky Mountain Elk Foundation, Sacramento	Open Zone Deer	4,000
Foundation for North American Wild Sheep	Bighorn Sheep-Open Zone	80,000
	Owens Valley Elk	13,000
	Golden Opportunity Deer	17,000
Rocky Mountain Elk Foundation, National	Grizzly Island Elk	42,000
Rocky Mountain Elk Foundation	Open Zone Deer	4,000
California Deer Association, San Jose	Golden Opportunity Deer	16,000
California Deer Association, Chico	Open Zone Deer	6,000
Mule Deer Foundation, National	Golden Opportunity Deer	20,000
Mule Deer Foundation, Central Coast	Grizzly Island Elk	33,000
	Golden Opportunity Deer	20,000
	Bighorn Sheep-Open Zone	63,000
California Deer Association, Salinas	Golden Opportunity Deer	20,500

through January of 2002 (specific dates are dependent on passage of

the 2001/2002 mammal hunting regulations).

35 Years of Award-Winning Hunter Education Instruction

Southern California hunter education instructor Gene Hubler will mark his 35th anniversary of volunteer teaching in July of this year.

Hubler, a Rancho Cucamonga resident, is designated a "Master Hunter Education Instructor" and was the 1997 recipient of Winchester's Hunter Education Volunteer Instructor of the Year Award.

Hubler and his team of instructors have collectively taught more than 16,000 students. They have also trained more than 300 Hunter Education and National Rifle Association instructors.

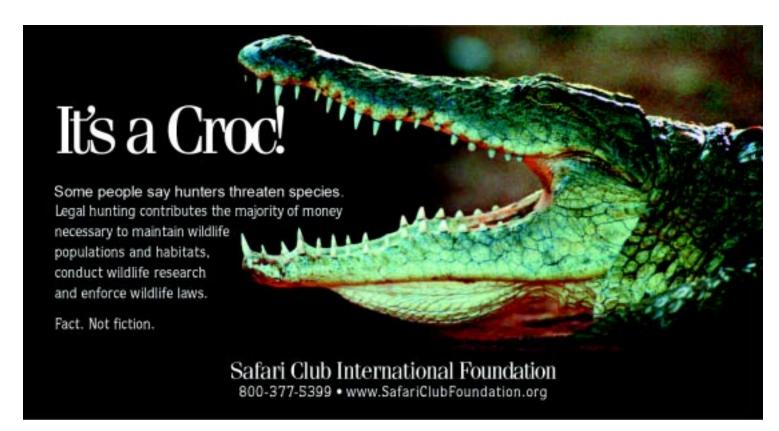
"Gene is a shining example of a dedicated volunteer," said Jack Edwards, chief of the DFG's Con-



Gene Hubler with DFG Captain Lisa Curtis.

servation Education Branch. "He has trained more volunteer hunter education instructors than anyone in the 45-year history of our program."

Through the efforts of dedicated volunteers like Gene Hubler, more than 20,000 new hunters graduate in California each year.



Grown and Harvested



Here are a few of the photos we received from hunters who were successful last season. Congratulations!

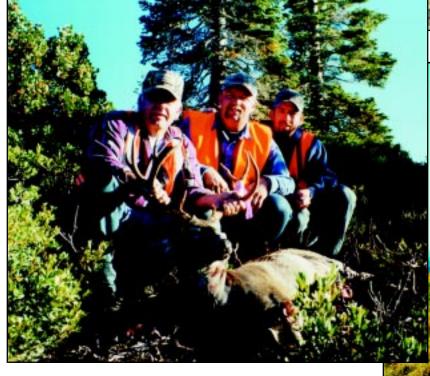


Clockwise from top: Daniel A. Baldi, Sonoma County; Scott Boswell, Zone X9a; Mark Scales, Zone X3a.

in California







Clockrise from top left: Mike Cabrera, Zone D11; Tom McMahan, Zone X2; Monte D. Matheson, Zone B1; Jeff Hawkins, Richard Shinn & Bob Hawkins, Zone B2

2000 Deer Antler Class Statistics

The following table shows the total reported number and percent of forked horn-or-better bucks by antler class and zone or hunt. Data provided by Russ Mohr, associate wildlife biologist with DFG's deer program in Sacramento.

	2 pt.	3 pt.	4 pt.	4+ pt.	Total		2 pt.	3 pt.	4 pt.	4+ pt.	Total
Zone or Hunt	Bucks	Bucks	Bucks	Bucks	Buck Kill	Zone or Hunt	Bucks	Bucks	Bucks	Bucks	Buck Kill
A Zone (South)	68.2%	24.9%	6.1%	.5%	2885	Hunt A12	50.0%	50.0%			6
A Zone (North)	60.6%	29.6%	8.8%	.9%	2565	Hunt A13	25.0%	50.0%	25.0%		4
Zone B1	43.1%	37.9%	17.1%	1.6%	1851	Hunt A14	50.0%	50.0%			4
Zone B2	56.9%	29.2%	12.2%	1.6%	1614	Hunt A15	66.7%		16.7%	16.7%	6
Zone B3	53.8%	32.1%	11.3%	2.7%	364	Hunt A16	44.4%	47.2%	8.3%		36
Zone B4	47.0%	35.7%	16.5%	0.9%	230	Hunt A17					0
Zone B5	50.3%	37.8%	10.4%	0.9%	431	Hunt A18	100.0%				1
Zone B6	46.5%	35.8%	14.5%	3.2%	757	Hunt A19	100.0%				1
Zone C1	46.9%	41.0%	11.0%	1.1%	373	Hunt A20	33.3%	42.9%	14.3%	4.8%	21
Zone C2	45.1%	37.7%	16.2%	1.0%	204	Hunt A21		100.0%			2
Zone C3	45.2%	35.7%	16.3%	2.8%	325	Hunt A22	57.1%	28.6%			7
Zone C4	50.2%	34.6%	13.2%	1.7%	416	Hunt A23					
Zone D3	55.4%	28.6%	13.1%	2.8%	762	Hunt A24	55.6%	44.4%			0 9 7
Zone D4	52.1%	24.7%	20.1%	3.1%	194	Hunt A25	57.1%	28.6%	14.3%		7
Zone D5	51.9%	29.9%	15.3%	2.6%	1291	Hunt A26	25.0%	25.0%	25.0%	25.0%	8
Zone D6	52.0%	30.7%	13.9%	3.0%	798	Hunt A27		100.0%			1
Zone D7	53.9%	26.1%	15.9%	4.0%	647	Hunt A30	100.0%				1
Zone D8	56.6%	28.3%	12.4%	2.8%	435	Hunt A31	57.1%	14.3%	7.1%	14.3%	14
Zone D9	60.4%	27.8%	10.2%	1.6%	187	Hunt G1	34.5%	41.8%	20.8%	2.9%	650
Zone D10	62.8%	25.6%	9.3%	2.3%	86	Hunt G3	0	31.6%	57.9%	10.5%	19
Zone D11	70.1%	22.2%	5.6%	1.7%	234	Hunt G6	36.4%	36.4%	18.2%	9.1%	22
Zone D12	31.9%	34.0%	29.8%	4.3%	47	Hunt G7	50.0%	30.170	10.270	3.1 /0	2
Zone D13	64.9%	25.3%	8.4%	1.4%	296	Hunt G8	30.070				3
Zone D14	52.0%	31.2%	16.3%	0.5%	202	Hunt G9					Ő
Zone D15	57.8%	24.4%	8.9%	6.7%	45	Hunt G10	55.1%	24.5%	4.1%		49
Zone D16	67.9%	25.8%	5.3%	0.5%	209	Hunt G11	15.6%	3.1%	7.1 /0		32
Zone D17	27.1%	45.7%	21.4%	5.7%	70	Hunt G12	37.5%	12.5%	37.5%		8
Zone D19	71.2%	26.0%	2.7%	3.7 70	73	Hunt G13	37.370	12.5 /0	37.370		11
Zone X1	39.3%	36.5%	19.6%	4.5%	550	Hunt G19	75.0%				4
Zone X2	35.1%	22.8%	35.1%	7.0%	57	Hunt G21	50.0%	50.0%	2	2	7
Zone X3a	35.3%	32.8%	26.7%	5.2%	116	Hunt G37	16.7%	27.8%	38.9%	16.7%	18
Zone X3b	40.8%	30.6%	24.1%	4.1%	245	Hunt G38	34.5%	34.5%	20.7%	10.7%	58
Zone X4	38.6%	34.3%	24.1%	3.0%	166	Hunt M3	7.1%	21.4%	57.1%	14.3%	14
Zone X5a	23.6%	36.4%	30.9%	9.1%	55	Hunt M4	7.170	80.0%	20.0%	14.5 /0	5
Zone X5b	23.1%	41.3%	26.9%	8.7%	104	Hunt M5		33.3%	66.7%		6
Zone X6a	43.3%	34.3%	20.1%	1.5%	134	Hunt M6		33.3 /0	00.7 70		1
Zone X6b	50.6%	24.1%	22.9%	2.4%	83	Hunt M7	33.3%		11.1%		9
Zone X7a	42.9%	32.1%	19.0%	6.0%	84	Hunt M8	57.1%	14.3%	14.3%	14.3%	7
Zone X7b	34.6%	46.2%	19.0%	0.070	26	Hunt M9	50.0%	12.5%	37.5%	14.570	8
Zone X8	35.9%	39.1%	23.4%	1.6%	64	Hunt M11	16.7%	50.0%	33.3%		12
Zone X9a	43.3%	34.2%	19.3%	3.2%	187	Hunt MA1	80.0%	20.0%	33.3 /0		5
Zone X9b	41.7%	30.6%	27.8%	3.270	36	Hunt MA3	46.7%	40.0%	13.3%		15
Zone X9c	41.7%	28.4%	25.9%		81	Hunt J1	40.7%	28.6%	28.6%		7
Zone X10	45.7%	26.4%	26.9%		26	Hunt J3	28.6%	42.9%	28.6%		7
Zone X12	33.3%	38.6%	26.9%	2.8%	249	Hunt J4	12.5%	62.5%	25.0%		8
Hunt A1	56.2%	33.3%	10.4%	2.0 /0	48	Hunt J7	50.0%	50.0%	25.070		2
Hunt A2	57.5%	32.5%	10.4%		120	Hunt J8	60.0%	20.0%	20.0%		2 5
Hunt A3	57.5%	25.0%	17.9%		28	Hunt J9	100.0%	20.076	20.070		1
Hunt A4	37.170	25.0%	17.5%	100.0%	26 1	Hunt J10	41.7%	33.3%	8.3%		12
Hunt A5	55.6%	33.3%	11.1%	100.0-/6	9	Hunt J10	40.0%	40.0%	0.370		5
	63.6%	18.2%	13.6%	4.5%	22		40.0%	12.5%	50.0%	37.5%	5
Hunt A6 Hunt A7		18.2% 37.5%	13.6%	4.5%	22 8	Hunt J12	50.0%	12.5%	50.0%	37.5%	8
	62.5%	37.5%				Hunt J13		20.00/			5
Hunt A8			100.00/		0	Hunt J14	80.0%	20.0%	16 70/	22.20/	5 6
Hunt A9 Hunt A11	50.0%	10.0%	100.0% 40.0%		1 10	Hunt J15	33.3%	16.7%	16.7%	33.3%	
		10.0%	40.0%		10	Statewide	52.9%	31.2%	13.4%	2.1%	21481

Table does not include unclassified or unreported buck kills, or kills on PLM land, so totals do not add up to 100%.